

**KI KLEINFELDER**

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**PROPOSED WORK PLAN  
FOR  
CONTINUED SITE ASSESSMENT  
LINCOLN INDUSTRIAL CENTER  
SANTA FE SPRINGS, CALIFORNIA**

**PROJECT 50-1448-04**

**PREPARED FOR  
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## INTRODUCTION

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During January 1988, Kleinfelder conducted initial assessment activities on the Lincoln Industrial Center, Santa Fe Springs, California (refer to Figure 1 - Site Location Map). Those studies outlined groundwater and soil contamination associated with diesel fuel leakage from previously existing underground fuel storage tanks. Subsequent efforts by Kleinfelder, Inc., Diagnostic Engineering, Inc., and Groundwater Technology, Inc. have further defined the extent of soils and groundwater contamination from the fuel storage tanks. Testing of LIC-2, a 4-inch diameter extraction well, yielded additional hydrogeologic information about the characteristics of the aquifer. Results of those activities are contained in Kleinfelder's report "Soil and Groundwater Assessment Study, Lincoln Industrial Center," Diagnostic Engineering's report "Limited Site Characterization Site Mitigation Plan for Lincoln Property Company," and Groundwater Technology, Inc.'s "Report on Remediation Operations, Lincoln Slauson Distribution Center."

The California Regional Water Quality Control Board (CRWQCB) requested that assessment work at the Lincoln Industrial Center be continued to further define onsite and offsite contamination. Kleinfelder is proposing to install 3 wells offsite to delineate the diesel fuel plume and to sample three of the existing wells onsite to better define diesel fuel, tetrachloroethylene, and chromium concentrations and distribution.

## PREVIOUS WORK

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On June 11, 1986, Diagnostic Engineering Inc. (DEI), removed two 10,000-gallon diesel fuel tanks and two 5,000-gallon gasoline tanks from the Lincoln Industrial Center. Samples of soil surrounding the tanks contained petroleum hydrocarbon compounds. Soils were excavated to a depth of 30 feet where the average petroleum hydrocarbon concentrations were 250 milligrams per liter (mg/l). Four hundred and twenty cubic yards of diesel fuel-contaminated soil were removed from the site between July 11 and July 18, 1986, under the supervision of the Los Angeles County Department of Public Works. Groundwater was not thought to be impacted by the diesel fuel release.

During February 1988, Kleinfelder, Inc., installed three monitoring wells onsite (LIC-1, LIC-2, and LIC-3). Well LIC-2 (drilled in the old underground storage tank area), encountered a layer of diesel fuel floating on groundwater. Eight additional wells were installed by DEI to determine the extent of diesel fuel contamination in the groundwater. Locations of wells installed by Kleinfelder and DEI are illustrated on Figure 2 - Well Location Map.

Soil samples obtained during well drilling were analyzed for total petroleum hydrocarbons. Well LIC-1 was also tested for metals. Groundwater samples have been analyzed for petroleum hydrocarbon compounds, ethylene dibromide, solvents, and metals. Chemical results indicate that the petroleum hydrocarbon compounds present are diesel fuel; they have been detected in the groundwater in wells LIC-2, and LIC-4. Tetrachloroethylene (PCE), and chromium are present above maximum contaminant levels for drinking water in some wells. The PCE source appears to be offsite. The chromium source has not been delineated at this time.

## OFFSITE ASSESSMENT

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Kleinfelder proposes to install three offsite monitoring wells to define the diesel fuel plume. Water level measurements in the wells indicate that groundwater flows to the west-southwest. Wells will be located in the direction of the plume migration based on the estimated groundwater flow direction as indicated on Figure 2. Two wells will be installed on Southern Pacific Railroad property, and the third well will be installed on a vacant property currently advertised for sale by the Seely Company. Property owners are in the process of being contacted.

The proposed scope of work for soil sampling, well installation, and groundwater monitoring is as follows:

### **Task 1: Soil Sampling and Monitoring Well Installation**

Three groundwater monitoring wells will be drilled at the locations shown on Figure 2. The depth to groundwater is anticipated to be about 30 feet. The necessary permits will be obtained from the Los Angeles County Department of Health Services. The monitoring wells will consist of:

- o Drilling three, 50-foot boreholes using a 10-inch truck-mounted hollow-stem auger drilling rig. Soils penetrated during drilling will be geologically logged and monitored with a photoionization detector (PID) by use of the head space analysis method.

Excavated soil will be placed in DOT-approved drums until a proper disposal method can be assessed. It will be the responsibility of the Lincoln Property Company to properly dispose of the soils. All tooling or well casing will be steam cleaned prior to drilling or construction of the wells.

- o Approximately six soil samples, two from each well, will be submitted to the laboratory for analyses for total petroleum hydrocarbons by U.S. EPA method 418.1.
- o Construction of monitoring wells using 4-inch, schedule 40, flush-threaded PVC well casing.
- o Well screen will consist of 4-inch, schedule 40, flush-threaded, PVC well screen equipped with factory 0.020-inch slots. Well screen will be placed 5 feet above the water surface to 15 feet below.
- o Monterey #3 sand gravel pack will be installed in the annulus opposite the well screen to a depth two feet above the top of the well screen.
- o The remaining annulus to a depth 5 feet below ground surface will be sealed with Volclay grout (cement and bentonite).
- o The upper 5 feet of the annulus will be filled with neat Portland cement.
- o The top of the well casing will be protected by a 14-inch concrete pad and a lockable steel cover cemented into place.

## **Task 2: Well Development**

The wells will be developed by the airlift method using a well development tool. Wells will be airlifted until the discharge is clear and relatively free of sediment. Well development water will be placed in drums until a proper disposal method can be prescribed. The Lincoln Property Company will be responsible for proper disposal of the water. If the formations yield small amounts of water then tap water may be added to the well to aid in development. Water volumes, if added, will be tabulated and a like volume will be removed prior to well purging during sampling.

## **Task 3: Groundwater Sampling and Analyses**

Groundwater sampling will be conducted in accordance with the attached sampling protocol (Appendix A). Groundwater samples will be collected in laboratory prepared sample bottles after three to five well volumes have been evacuated from the well. Water discharged during evacuation will be placed in drums until laboratory data can be reviewed and a proper disposal method prescribed. The Lincoln Property Company will be responsible for proper disposal of all generated soil and groundwater unless other arrangements are made. Groundwater samples will be transported to a state certified laboratory the same day that they are collected.

Samples will be analyzed for total petroleum hydrocarbons by U.S. EPA method 8015. In addition, samples from one well will be tested for total chromium and solvents by U.S. EPA method 601. Proper chain-of-custody forms will be maintained throughout the sampling and analysis sequence, and will be included in our final report.

## ONSITE ASSESSMENT

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Three onsite wells will be sampled to better define diesel fuel contamination, and PCE and chromium distribution. Groundwater from wells LIC-4, and LIC-11 will be tested for total petroleum hydrocarbons by U.S. EPA method 8015. In addition, groundwater from wells LIC-3, and LIC-4 will be tested for solvents by U.S. EPA method 601, and total chromium by U.S. EPA method 200.7.

Groundwater sampling will be conducted as described in the sampling protocol (Appendix A), and in the discussion of groundwater sampling for offsite wells.